

8.3 Hazard and risk

Environmental hazards resulting from the construction and operation of the project, and the identification of measures to avoid, mitigate or manage these risks, are addressed throughout **Chapter 7** and **Chapter 8** of this environmental impact assessment.

Hazards arising from incidents during project construction and operation could also pose a risk to human health, as well as that of the environment. Such potential risks and appropriate management measures are discussed below.

8.3.1 Assessment of potential impacts

Construction

During construction, the following hazards and risks would be associated with the project:

- Potential environmental and human health hazards resulting from accidental releases or improper handling and storage of hazardous substances within the project area.
- Potential environmental and human health hazards resulting from releases of hazardous substances from vehicles transporting hazardous substances to the site in the event of an accident.
- Occupational health and safety hazards, such as dangers to construction workers, road users and the general public.
- Potential rupture or interference with underground services.

The types of hazardous substances that would be transported to the site and used within the project area during construction may include (but are not limited to):

- Diesel fuels.
- Oils, greases and lubricants.
- Explosives (Class 1).
- Gases (oxy-Acetylene) (Class 2.1).
- Bitumen (Class 3 PGII).
- Paints and epoxies (Class 3 PGII and Class 3 PGIII).
- Herbicides (Class 6.1 PGII).
- Hydrated lime (non dangerous good).
- Curing compounds (non dangerous good).

The above classifications have been determined using the 'Australian Code for the Transport of Dangerous Goods by Road and Rail' (7th edition) (National Transport Commission, 2007).

The majority of these substances would be stored within the major construction compound sites. The storage, handling and use of the materials would be undertaken in accordance with the *Occupational Health and Safety Act 2000* and the 'Storage and Handling of Dangerous Goods Code of Practice' (WorkCover NSW, 2005).

Potential inadvertent toxic impacts, fire and explosions resulting from the handling, storage and transportation of hazardous materials may adversely affect the quality of the local environment and impact human safety. However, the potential for such incidents to occur is considered to be low in view of the following factors:

- The quantities of hazardous goods required are expected to be low and below the thresholds requiring preparation of a preliminary hazard analysis (PHA) as detailed in 'Applying State Environmental Planning Policy 33 (SEPP 33): Hazardous and Offensive Development Application Guidelines' (Department of Planning and Infrastructure (DP&I), 2011). As such, a preliminary hazard analysis is not required.
- Hazardous substances would be transported in accordance with relevant legislation and codes.
- The likelihood of a crash occurring during the transportation of hazardous substances to and from work sites and spillage to the receiving environment is considered low.
- The project is located in a sparsely populated area (with the exception of the Berry township) and it is unlikely the incident would impact on local properties. Risks to road users would be limited to those directly involved in the incident.
- Implementation of environmental management measures such as those identified in **Section 8.4.2** would reduce the risk to the environment, construction personnel and the public.

It is proposed that the explosives would not be stored at the construction compounds and would be transported to the site by the specialist contractor as and when required. In the event that the contractor wishes to store explosives, an assessment would need to be undertaken in accordance with 'Applying SEPP 33: Hazardous and Offensive Development Application Guidelines' (DP&I 2011). Depending on this review, the preparation of a PHA may be required before this activity could occur.

Rock falls and steep slopes also present a potential hazard during construction. Rock fall hazards occur where a risk of instability exists at proposed cuts, such as the major cut proposed at Toolijooa Ridge. A rock fall could potentially injure construction personnel, other persons in the vicinity of the activity and cause damage to construction equipment. Steep slopes may pose an additional risk for construction personnel, who could slip and fall, or be injured by unsecured equipment.

The potential rupture of underground services when excavating could give rise to hazards in the form of electrocution or fire if a gas main is impacted. Risks associated with these hazards would be minimised by undertaking utility checks (such as dial before you dig), consulting with the relevant service infrastructure provider and if required, relocating and/or protecting utilities within the project area prior to the commencement of construction. This would require particular attention when working over or in the vicinity of the Eastern Gas Pipeline, to avoid rupture of the pressurised gas pipeline.

Overall, the hazards and risks associated with the project during construction are considered low and would be managed with the implementation of the standard management and mitigation measures such as those identified in **Section 8.3.2**.

Operation

It is not anticipated that significant volumes of hazardous substances would be used by the RMS during operation of the project.

However, dangerous goods are permitted to be transported in significant quantities on the Princes Highway in accordance with relevant regulations and codes and may include:

- Flammable and combustible petrol, diesel and liquefied petroleum gas.
- Toxic gases, such as ammonia and chlorine.
- Corrosive acids and alkalis.
- Other toxic materials, such as pesticides.
- Nitrogen-based fertilisers.
- Bulk explosives.

The nature of the project means that there is an inherent risk of vehicle collision associated with its operation, which could result in the accidental spill of dangerous goods. This would have the potential to adversely affect the quality of the local environment and impact human safety, with potential hazards including toxic effects, fire and explosions. Contaminants either directly associated with the spill or hazardous material cleanup may enter the receiving environment from both paved and unpaved surfaces.

However, the potential for such a spill and consequential impacts is considered to be low in view of the following factors:

- Dangerous goods vehicle movements along the highway are expected to account for a very minor proportion of total daily traffic movements and the probability of a crash involving a truck containing dangerous goods is low.
- The high road design standard of the project would reduce the potential for road crashes relative to the existing situation.
- The existing stringent legislative controls on the transport of dangerous goods reduce the risk of impacts.
- The project is located within a sparsely populated area (with the exception of the Berry township), so most incidents would have limited potential to affect those not directly involved in the crash or incident.
- In the unlikely event of a traffic crash involving a vehicle carrying hazardous substances, any spills would typically be contained to the roadway area by the appropriate incident and emergency response teams. Runoff from bridges over watercourses and floodplains would be directed and captured in the permanent water quality basins or swales. These water quality treatment measures provide capacity to treat first flush from the pavement surface and reduce the risk of spills discharging onto adjacent land or watercourses.

Hazards and risks associated with the project during operation are considered low and would be managed with the implementation of standard management and mitigation measures identified below.

8.3.2 Environmental management measures

Mitigation and management measures would be implemented to avoid, minimise or manage hazard and risk. These mitigation and management measures have been identified in **Table 8-7** and incorporated in the draft statement of commitments in **Chapter 10**.

Table 8-7 Mitigation and management measures

Potential impacts	Mitigation and management measures
Construction	
General	<p>Prepare site specific Hazard and Risk Management Plans as part of the Construction Environmental Management Plan (CEMP), which may include items such as:</p> <ul style="list-style-type: none"> • Details of the hazards and risks associated with construction activities. • Risk management measures, including those identified in Chapters 7 and 8 of this environmental assessment. • Procedures to comply with all legislative and industry standard requirements. • Contingency plans, as required. • Site-specific Occupational Health and Safety plans and safe work method statements. • Training for all personnel (including subcontractors) in site inductions, including the recognition and awareness of site hazards and the locations of relevant equipment to protect themselves and manage any spills.
Risks to the Eastern gas pipeline during construction	<p>Consult with Jemena during detailed design to identify necessary protection measures for the Eastern gas pipeline, and to determine suitable construction methods when working in the vicinity of the pipeline.</p> <p>Prepare a safety management study, completed in accordance with the Australian Standard AS 2885.1-2007 Pipelines – Gas and liquid petroleum – Design and Construction, which would outline measures to be undertaken to ensure there would be no impacts to the pipeline.</p>
Risk of contamination of the downstream receiving environment	<p>Undertake a PHA if the quantities of hazardous substances during construction are found to exceed threshold levels provided in 'Applying SEPP 33: Hazardous and Offensive Development Application Guidelines' (DP&I, 2011).</p> <p>Store, handle and use hazardous construction materials in accordance with the <i>Occupational Health and Safety Act 2000</i> and the 'Storage and Handling of Dangerous Goods Code of Practice' (Workcover NSW, 2005).</p> <p>Provide secure, bunded areas around storage areas for oils, fuels and other hazardous liquids.</p> <p>Provide bunds around activities where there is a potential for spills and contamination.</p>

Potential impacts	Mitigation and management measures
	<p>Locate chemical storage areas outside areas subject to the 1 in 100 flood event. Where this is not feasible, provide sufficient freeboard to avoid inundation during events of this size.</p> <p>In the event of an incident leading to a spill of a hazardous substance during construction, use standard incident control measures in accordance with contingency plans for the worksite.</p> <p>Provide appropriately sized temporary sediment basins for the duration of construction.</p> <p>Carry out regular maintenance and inspection of all controls.</p>
Risk of contamination from transportation of hazardous goods	<p>Transport all hazardous substances in accordance with relevant legislation and codes, including the <i>Road and Rail Transport (Dangerous Goods) (Road) Regulation 1998</i> and the 'Australian Code for the Transport of Dangerous Goods by Road and Rail' (National Transport Commission, 2008).</p> <p>Manage specific risks associated with the transport of hazardous substances to and from work sites, including the risks associated with temporary changes in local traffic conditions during the construction period, through the implementation of measures detailed in the CEMP.</p>
Operation	
Risk of contamination from transportation of hazardous substances	<p>In the unlikely event of a spill, direct runoff from bridges away from watercourses and floodplains to permanent water quality basins or swales.</p> <p>Design water quality treatment measures to provide capacity to treat first flush from the pavement surface and reduce the risk of spills discharging onto adjacent land or watercourses. Confirm locations and design capacity during the detailed design phase of the project.</p> <p>Implement the Incident Response Plan (prepared by the then RTA) in the event of an accident, spill or any incident that results in the full closure of the highway.</p> <p>Activate the memorandum of understanding between RMS and the NSW Police Service, NSW Rural Fire Service, NSW Fire Brigade and other emergency services to manage the response to incidents on State controlled roads.</p> <p>Provide an emergency cross over when required.</p>